Department of Electrical Engineering and Computer Science

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| **Instructor:** | Almabrok Essa | |
| Office: | FH 321 | |
| Phone: | 216-687-2588 | |
| E-mail: | a.essa@csuohio.edu | |

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|---|---|---|
| **Lectures:** | M/W/F | 2:35 pm – 3:25 pm |

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| **Location:** | FH 202 |

**TA:**

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| Name: | TBA | |
| E-mail: | TBA | |

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| **Office Hours:** | T/Th | 11:30 am – 1:30 pm, or by appointment. |
| | | I frequently monitor emails and respond in a very timely manner. |

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| **Credit Hours:** | 3 |
| **Prerequisites:** | CIS 368 |

## Objective/Description

This course will introduce the basic concepts, principles, and techniques in multimedia data capturing and representation, including audio, image and video. Students will develop an understanding of the concepts of the discipline including analysis, design, and implementation of information and computing systems. Also, they will develop the skills needed to generate a systematic engineering approach.

## Expected outcomes

Upon the completion of this course, students should be able to:
- Understand the methods and techniques that are used in multimedia data capturing and representation.
- Translate fundamental computing concepts to a variety of emerging technologies.
- Apply mathematical foundations, algorithmic principles, and computer science theory to design computer-based systems.
- Evaluate a computer-based system, process, component, or program to meet desired needs.
- Use current techniques, skills, and tools necessary for computing practice.

## Recommended Textbook

- Digital Media Primer, by Yue-Ling Wong, Pearson, 3rd Ed, ISBN-13: 9780134054285.
- Additional materials may be provided by the instructor for selected topics.

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**Course Topics:**

| Week | Topic |
|------|-------|
| 1-2 | Background and Basic Concepts. |
| 3-4 | Fundamentals of Digital Imaging. |
| 5-6 | Capturing and Editing Digital Images. |
| 7-8 | Fundamentals of Digital Video. <br><br> Review for Midterm Exam. <br><br> **Midterm Exam:** *Wednesday, Oct 13$^{th}$ (2:35 pm – 3:25 pm).* |
| 9-10 | Video Summarization. |
| 11-12 | Fundamentals of Digital Audio. |
| 13-14 | Capturing and Editing Digital Audio. |
| 14-15 | Project Presentation. <br><br> Review for Final Exam. |
| 16 | **Final Exam:** *Friday, Dec 10$^{th}$ (12:30 pm – 2:30 pm)* |

**Note:** The schedule and topics are subject to change.

**Grading Policy:**

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| Quizzes: | 15% | *There will be a few quizzes given randomly in class.* |
| Homework: | 20% | *There will be 6 – 8 assignments.* |
| Term Project: | 20% | *One project is required. Its details will be given later.* |
| Midterm Exam: | 20% | *Wednesday, October 13$^{th}$ (2:35 pm – 3:25 pm)* |
| Final Exam: | 25% | *Friday December 10$^{th}$ (12:30 pm – 2:30 pm)* |

In general, grades are determined as follows:

$$Grade >= 93\% \longrightarrow A$$
$$87\% <= Grade < 93\% \longrightarrow A\text{-}$$
$$83\% <= Grade < 87\% \longrightarrow B+$$
$$80\% <= Grade < 83\% \longrightarrow B$$
$$75\% <= Grade < 80\% \longrightarrow B\text{-}$$
$$70\% <= Grade < 75\% \longrightarrow C+$$
$$65\% <= Grade < 70\% \longrightarrow C$$
$$60\% <= Grade < 65\% \longrightarrow D$$
$$Grade < 60\% \longrightarrow F$$

I may change this slightly based on students' performance in tests that will benefit the students.

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**Important Dates:**

- **Last Day to Drop:** Friday, September 3rd, 2021

- **Midterm Exam:** Wednesday, October 13th, 2021 (2:35 pm – 3:25 pm)

- **Last Day to Withdraw:** Friday, October 29th, 2021

- **Final Exam:** Friday December 10th, 2021 (12:30 pm – 2:30 pm)

**Course Policies:**

- Attendance to all classes is required. Each student is responsible for his/her missed classes.
- Homework is due before the class time on the specified date. Late homework will receive the penalty of 10% per day up to two calendar days. For example, an assignment that is worth 90/100 points will receive 90*0.9 = 81/100 points if it is one day late. The same assignment will receive 90*0.8 = 72/100 points if it is two days late. **No material will be accepted after two days past the deadline.**
- A student who misses two assignments must see the instructor immediately with an explanation.
- Talk to instructor for special cases, such as illness. Proper documents may be required as a proof such as a doctor's note.
- Discussions on homework are allowed. **But all homework must be independent work.**
- Any forms of cheating may cause penalties, from getting an **F** in the course to academic actions according to the **university regulations**. The ethics policy of the Electrical Engineering and Computer Science Department can be found at: https://www.csuohio.edu/engineering/sites/csuohio.edu.engineering/files/Ethics%20Policy.pdf

**Academic Honesty:**

"**Cheating**" means intentionally misrepresenting the source, nature, or other conditions of academic work to receive undeserved credit. Cleveland State University affirms that acts of cheating debase the academic degree awarded, have no place in the University, and are severe offenses to academic goals, objectives and the rights of fellow students. CSU does not tolerate any type of cheating and will take disciplinary action up to and including expulsion.

**Disability Statement:**

- If you have a disability for which you will need to request accommodations, please contact as soon as possible the Office of Disability Services (Rhodes Tower West (RW210), phone: 216-687-2015).
- After they certify your needs, I will work with you to make accommodations.

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**COVID-19 Statement**

The COVID-19 pandemic is still present and serious, especially with the Delta variant. While you are in class on campus, you are required to have a properly worn mask regardless of vaccination status, always cough or sneeze into your elbow or tissue, and adhere to other public safety protocols and directives for your specific classroom/lab/studio.

- Students who do not follow these health and safety requirements will be instructed to leave class immediately.
- If you violate this protocol, you will need to leave the classroom and MAY be marked absent.
- Repeated violations of these health-saving protocols may lead to sanctions under the Student Code of Conduct (3344-83-04 [E] and [Z]) up to and including suspension or expulsion.
- Students with medical conditions that prevent them from wearing a mask should register with the Office of Disability Services to explore reasonable accommodation options as soon as possible. To register with the office, please visit their webpage at: https://www.csuohio.edu/disability/register.

The CSU community thanks you for your cooperation!